



# MSAPC ADVISORY CIRCULAR

U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF AIR AND WASTE MANAGEMENT ●

MOBILE SOURCE AIR POLLUTION CONTROL

A/C NO. 49A

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PAGE 1 OF 3 PAGES

SUBJECT: 1976 Fuel Economy Program

A. Purpose

The purpose of this Advisory Circular is to correct errors in Attachments A and B of Advisory Circular No. 49, "1976 Fuel Economy Program," and to add policy and procedural guidelines formulated to implement the EPA/FEA Voluntary Fuel Economy Labeling Program. Advisory Circular No. 49 is obsolete and should be discarded.

B. Background

1. In an effort to inform the public about the fuel economy characteristics of automobiles, EPA has published, in conjunction with FEA, the Gas Mileage Guide for New Car Buyers. In addition, the data used to produce the Buyers Guide have also been used to provide data for a voluntary fuel economy labeling program.

2. To ensure that the published fuel economy values are reasonable, and to resolve differences in fuel economy results between manufacturers' tests and EPA tests, a set of criteria has been developed by EPA to evaluate fuel economy test results.

3. The 1976 EPA/FEA Voluntary Fuel Economy Labeling Program is designed to aid automobile showroom customers in comparing the fuel economy potentials of vehicles available for purchase. In order to enable manufacturers to present these fuel economy data in a uniform manner, a set of guidelines for participation in the labeling program has been prepared.

4. Attachments A and B to this Advisory Circular were distributed on May 15, 1975, in conjunction with a letter from EPA Assistant Administrator Roger Strelow that invited participation in the 1976 EPA/FEA Voluntary Fuel Economy Labeling Program. For more convenient reference the correct Attachments A and B to that



letter are with this Advisory Circular incorporated into the Advisory Circular system. Attachments C through G are policy and procedural guidelines that expand upon or clarify certain portions of Attachments A and B, or resolve problems identified as experience was gained in the program. The information in these attachments has previously been made available to the affected manufacturers and to interested parties who have requested it.

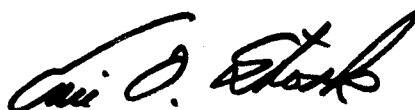
C. Applicability

This circular is applicable to 1976 model year gasoline fueled light duty vehicles and light duty trucks, and to Diesel light duty vehicles and light duty trucks.

D. Procedures

1. Attachment A of this Advisory Circular covers the manner in which fuel economy estimates have been generated for the 1976 editions of the Gas Mileage Guide for New Car Buyers.
2. Attachment B explains the 1976 EPA/FEA Voluntary Fuel Economy Labeling Program. This program uses data generated in the manner described in Attachment A.
3. Attachment C provides the criteria used by EPA for evaluating fuel economy test results.
4. Attachment D explains the manner in which a general or specific label format (as shown in Attachment B) may be modified when it is combined into a single label with the price information label.
5. Attachment E explains the procedures used when fuel economy data are not available for all inertia weight classes within an engine family/engine displacement/transmission type combination.
6. Attachment F explains the procedure used when a manufacturer chooses to exercise the option allowing emission testing at the higher inertia weight (available under 40 CFR 85.075-7, 85.175-7, 85.275-7, and 85.375-7).
7. Attachment G explains the procedure used when a car line/engine transmission combination is to be added to the Guide and fuel economy values have already been published for other car lines using the same engine and transmission.

8. Questions concerning the information provided by this Advisory Circular should be addressed to the Fuel Economy Group, Light Duty Vehicle Certification Branch, Environmental Protection Agency, 2565 Plymouth Road, Ann Arbor, Michigan 48105.



Eric O. Stork  
Deputy Assistant Administrator  
for Mobile Source Air Pollution Control

## Attachment A

## Publication of 1976 Fuel Economy Data

## A. Introduction

For the 1976 model year, the Environmental Protection Agency, in cooperation with the Federal Energy Administration, plans to publish fuel economy results in a revised format that is intended to provide more meaningful information to the consumer. The major changes from the 1975 model year program are outlined in Paragraph C of this Attachment.

## B. Definitions

1. "Car line" has been defined by SAE as a name denoting a group of vehicles within a make which has a degree of commonality in construction, such as body, chassis, etc. It will denote the basic means for identifying vehicles in the EPA/FEA fuel economy program. Car line does not consider any level of decor or opulence and is not generally distinguished by characteristics such as roof-line or number of doors, seats, or windows. Examples of car lines are Gremlin, Nova, Satellite, or Super Beetle. Station wagons and light trucks will be identified separately from passenger cars in each car line. EPA will apply the above definition in determining the car lines to be listed in the mileage guide. Manufacturers are encouraged to provide EPA with a breakdown of their 1976 product line, identifying vehicles by car line.
2. "Engine" basically corresponds to the EPA term "engine family." An engine family is limited to a single combination of carburetor, number of cylinders, catalyst usage, and, in most cases, engine displacement. In cases where an engine family contains engines of more than one displacement, the different displacement engines will be considered separately whenever possible. In cases where distinct engine families exist but the only difference is catalyst substrate, vehicle maintenance, or some other parameter over which the consumer can not realistically exercise choice in purchasing a vehicle, the individual families will be grouped together, i.e., the test vehicles of the respective engine families will be considered together as if all the vehicles were in one family.

3. "Transmission type" means manual or automatic transmission. No distinction is made as to the number of forward gears. Transmissions commonly referred to as "semi-automatics" or "automatic stickshifts" will be considered as automatic transmissions, provided they may be driven without the driver manually shifting the transmission during normal city and highway driving.
4. Vehicle configuration is a unique combination of engine configuration (as defined in the Part I Application for Certification Format), inertia weight class, transmission sub-type (e.g., automatic three-speed, manual four-speed) and axle ratio. Overdrive will be considered a transmission subtype.
5. Inertia weight refers to a method of grouping vehicles by weight classification as defined in 40 CFR 85.075-15(d).
6. Fuel economy data vehicles are vehicles which are tested solely for the purpose of generating fuel economy data (as opposed to emission certification testing, etc.). An emission data vehicle which has completed certification testing may be used as a fuel economy data vehicle. The submission of fuel economy data obtained from such vehicles to supplement that generated by certification test vehicles, the review of that data, and the criteria for acceptability are discussed in Section I of this Attachment. A test vehicle designated as a fuel economy data vehicle will under no circumstances have an effect on a manufacturer's certification status.

C. Improvements Incorporated in the 1976 Model Year Program

The following improvements to the publication of fuel economy results are being implemented for the 1976 model year:

1. City and highway fuel economy estimates will be reported for each combination of car line, engine, and transmission type.
2. The method for calculating fuel economy will be standardized for the 1976 model year: The HC, CO, and CO<sub>2</sub> exhaust emissions used in the carbon balance equation will be rounded to three significant numbers in accordance with the "Rounding Off Method" specified in ASTM E 29-67.

3. Harmonic averaging (which measures fuel consumption) and sales-weighting will replace the use of arithmetic averaging and sales-weighting for the 1976 model year.

Example:                      Vehicle No. 1 -- 14 mpg  
                                 Vehicle No. 2 -- 16 mpg

$$\text{Harmonic averaging: } \frac{2}{\left(\frac{1}{14 \text{ mpg}}\right) + \left(\frac{1}{16 \text{ mpg}}\right)} = 14.9 \text{ mpg}$$

$$\text{Arithmetic averaging: } \frac{14 \text{ mpg} + 16 \text{ mpg}}{2} = 15.0 \text{ mpg}$$

4. For the 1975 model year program, EPA did not accept fuel economy results generated by fuel economy data vehicles which were identical in configuration to emission-data vehicles. For the 1976 model year, EPA will allow submission of fuel economy data generated by fuel economy data vehicles identical in configuration to emission-data vehicles.

D. 1976 Gas Mileage Guide for New Car Buyers

1. Under the new approach, city and highway fuel economy values will be reported for each combination of car line, engine, and transmission. The fuel economy values listed for each car line/engine/transmission combination will be rounded to the nearest whole mile per gallon, and will consist of a sales-weighted harmonic average based on vehicle weight. The sales-weighted average will be calculated from the fuel economy results of EPA tests of a manufacturer's cars that use the same engine and transmission type, as well as from other fuel economy data submitted by the manufacturer and approved by EPA.

2. The 1976 Gas Mileage Guide for New Car Buyers will list manufacturers alphabetically, as was the case for the 1975 Guide. Light trucks will be included and listed by manufacturer in a separate section in the back of the Guide. Each passenger car and truck line/engine combination will be identified separately by number of cylinders, displacement, transmission type, and fuel system (e.g., 2 barrel carburetor, fuel injection). Combinations equipped with catalysts will also be identified separately. City and highway fuel economy data will be published separately to enable consumers to determine for themselves, based upon the kind of driving they do, how the city and highway values should be combined. For example, a salesman who drives 90 percent of his mileage on the highway and only 10 percent in the city, can weight the city and highway values accordingly, as can a commuter who does 60 percent of his driving in the city and 40 percent on the highway. The following chart indicates the format that will be used in the Guide:

Car Line	Engine Size (cu. in. disp.)	No. of Cylinders	Transmission	Fuel System	Catalysts	Fuel Economy	
			Type (manual or automatic)	(Carburetor barrels/ fuel injection)		City	Highway
Chevelle	250	6	M	1	X	16	23
	250	6	A	1	X	14	21
	350	8	M	2		12	19
	350	8	A	2		12	18
	350	8	M	2	X	13	19
	350	8	A	2	X	13	19
	350	8	A	2	X	13	19
Chevelle Wagon	350	8	A	2	X	13	19

(Above data are illustrative, not actual)

3. There will be two separate guides for 1976: one for 49-state vehicles and another for California vehicles. The California Guide will include all vehicles which have been certified against the more stringent California standards unless the manufacturer notifies EPA that specific configurations, although eligible for sale, are not intended

to be offered for sale in California. The 49-state Guide will include all vehicles which have been certified against the 49-state standards and California vehicles for which no apparent corresponding 49-state configuration exists, unless the manufacturer notifies EPA that specific configurations, although eligible to be sold, are not intended to be marketed outside of California.

#### E. Fuel Economy Data Base

To achieve the objective of the program it is desirable to test at least one vehicle of each engine /inertia weight/transmission type combination. Due to the complexity of some engine families, it will not always be possible to cover all possible combinations with the emission-data vehicle selections. When this occurs, the following procedure will be observed:

1. Based on the product line description contained in the Part I application for certification, EPA will notify the manufacturer which engine/inertia weight/transmission type combinations are not represented in their fuel economy data base.
2. The manufacturer may elect to submit fuel economy test data from additional vehicles to fill the unrepresented combinations. If the submitted data are reasonable, in EPA's engineering judgment, the test results will be accepted by EPA and included in the subsequent calculations. If EPA elects to perform a confirmatory test, the results from that test will normally constitute the official test results and will normally be used in subsequent calculations.
3. If the manufacturer elects to submit no additional data or refuses to submit a vehicle to EPA for confirmatory testing, EPA will either estimate a fuel economy for that engine/inertia weight/transmission type combination or the data will be grouped together. In most cases, a fuel economy will be estimated to cover unrepresented inertia weights (e.g., fuel economy results from a 4,000-lb. automatic transmission test vehicle will be used to represent 3,500-lb. automatic transmission production vehicles) and the data will be grouped together when there are unrepresented engines or transmission types. In order that the data base be as accurate as possible, the EPA Fuel Economy Group will coordinate their estimation of fuel economy for unrepresented combinations with the manufacturer. To allow sufficient time for discussion of the possible estimate alternatives, manufacturers should notify EPA as early as possible that they do not intend to submit fuel economy data for an unrepresented combination.



4. When it is reasonable to do so, EPA will retest an emission-data vehicle at a different inertia weight in order to cover an unrepresented inertia weight. In the unlikely event that an engine or transmission type is not represented by any test vehicle in the engine family, the data will be grouped together (e.g., EPA/FEA would publish one fuel economy estimate for both automatic and manual transmissions). EPA is presently considering three methods for estimating the fuel economy of unrepresented combinations when the situation cannot be resolved as described above.
  1. In the case of an unrepresented inertia weight, use the actual fuel economy data for a vehicle of a different inertia weight for which data are available.
  2. Estimate the fuel economy based on straight-line interpolation or extrapolation of the existing fuel economy data of appropriate vehicles in the family.
  3. Estimate the fuel economy based on a computer regression analysis determined from the entire 1975 model year fuel economy data base.

Manufacturers will be encouraged to submit any information which would help insure the accuracy of the estimates. A description of the final estimating procedure will be available by June 1975.

#### F. Fuel Economy Calculations

1. The fuel economy results for a specific test shall be calculated using the carbon balance equation. The HC, CO, and CO<sub>2</sub> exhaust emission results used to calculate the fuel economy shall be rounded to three significant numbers in accordance with the "Rounding Off Method" specified in ASTM E 29-67. (For purposes of illustration, the examples following indicate fuel economy values carried out to only one decimal place. In the official calculations, fuel economy values will be carried through the calculations using more decimal places and then rounded at the end to the nearest whole mile per gallon.)

$$'75 \text{ weighted (mi/gal)} = \frac{(\text{HC carbon wt. fraction}) \times \text{lbs./gal.} \times 453.6 \frac{\text{gm}}{\text{lb.}}}{\sum_{i=1}^3 ((\text{carbon weight fraction})_i \times (\text{weighted gm/mi})_i)}$$

where: i = 1 for HC  
i = 2 for CO  
i = 3 for CO<sub>2</sub>

constants currently used:

	Density (lbs/gal)	Carbon wt. Fractions		
		HC	CO	CO <sub>2</sub>
Gasoline	6.167	0.86561	0.42881	0.27292
Diesel #2	7.076	0.86561	0.42881	0.27292
Diesel #1	6.790	0.85999	0.42881	0.27292
Propane	4.244	0.81714	0.42881	0.27292

2. The procedure EPA will use to arrive at fuel economy values for each combination of car line/engine/transmission is best explained by example. The process is divided into two basic steps:

- a) The calculation of a city and a highway fuel economy for each engine/inertia weight/transmission type combination.
- b) The application of these data, on a sales-weighted basis, to each car line.

The procedure is identical for the city and highway values--only the fuel economy numbers differ. Therefore, the remainder of the description will address the calculation only in terms of a single fuel economy value.

G. Step 1 - Calculation of Fuel Economy for each Engine/Inertia Weight/Transmission Type Combination.

1. All emission-data and fuel economy data vehicles using the specific engine are listed. If only one vehicle was tested of a particular inertia weight-transmission type combination, then the fuel economy results from that vehicle will

constitute the fuel economy for the respective inertia weight-transmission type combination. If more than one vehicle of a particular inertia weight-transmission type was tested, then the fuel economy results of the vehicles will be combined in proportion to the respective projected sales of each test vehicle. The sales assigned to any test vehicle shall be the total projected sales of all vehicles of the same vehicle configuration. When more than one vehicle of a particular configuration is tested as an emission-data vehicle or fuel economy data vehicle, the harmonic mean of the fuel economies of the respective vehicles will be used in subsequent calculations.

In cases where the manufacturer has chosen not to supply the projected sales of vehicles of a particular configuration (i.e., engine configuration, inertia weight class, transmission sub-type, and axle ratio), sales weighting will be based on the available sales information. For example, if a manufacturer has not supplied the axle ratio sales projections associated with the engine configuration/inertia weight class/transmission sub-type combinations available in this product line, the sales assigned to the vehicle configuration represented by any test vehicle would be the projected sales of all vehicles of the same engine configuration/inertia weight class/transmission sub-type combination (i.e., for calculation purposes, the vehicle configuration for this particular manufacturer will exclude axle ratio). EPA intends to use the sales projection available in the Part I application for certification unless the manufacturer elects to supply additional sales information.

2. For example, assume the following passenger car test vehicles in an engine family:

Engine Family 350-2  
(350-2 barrel, 8-cylinder)

<u>Test Vehicle</u>	<u>Transmission</u>	<u>Inertia Weight</u>	<u>MPG</u>	<u>Projected Sales of Production Vehicles Similar to Test Vehicle</u>
Ventura	M-3	3500	16.1	15000
Ventura	A-3	3500	15.9	35000
LeMans	M-3	4000	14.2	10000
Ventura	M-4	4000	15.0	15000
LeMans	A-3	4000	13.8	25000
LeMans	A-3	4500	13.2	20000
Pontiac	A-3	5000	10.6	40000

(Above data are illustrative, not actual)

3. Upon examination of the test vehicles using this particular engine, it can be seen that there is only one vehicle in each of the 3500-manual, 3500-automatic, 4000-automatic, 4500-automatic, and 5000-automatic classes. Therefore, the fuel economy results for those test vehicles constitute the fuel economy results for the respective inertia weight/transmission classes. Any of the above vehicles could have been either an emission-data vehicle or a fuel economy data vehicle.

3500 pound/manual transmission	= 16.1 MPG
3500 pound/automatic transmission	= 15.9 MPG
4000 pound/automatic transmission	= 13.8 MPG
4500 pound/automatic transmission	= 13.2 MPG
5000 pound/automatic transmission	= 10.6 MPG

4. To calculate the 4000 pound/manual transmission fuel economy, the fuel economy results of the 4000 pound/manual 3-speed and 4000 pound/manual 4-speed are harmonically weighted according to their respective projected sales.

$$\frac{1}{\left(\frac{10000}{25000}\right) \left(\frac{1}{14.2}\right) + \left(\frac{15000}{25000}\right) \left(\frac{1}{15.0}\right)} = 14.7$$

Therefore, the 4000 pound/manual transmission fuel economy is 14.7 MPG.

4000 pound/manual transmission = 14.7 MPG

5. Note that the car line of the test vehicle using a given engine makes no difference - only the weight and transmission.

#### H. Step 2 - Application of Fuel Economy Data to Each Car Line

1. The fuel economy values listed by EPA and FEA in the Guide for a car line/engine/transmission combination are a function of the projected vehicle sales distribution, by inertia weight, in a car line/engine/transmission class.

Thus, each car line using a specific engine and transmission is divided into inertia weight classes. Returning to the example used above, assume that four car lines used the 350-2 barrel, 8 cylinder engine and that they are distributed by weight class, as follows:

Ventura (manual)	100% @ 3500 pounds
(automatic)	30% @ 3500 pounds
	70% @ 4000 pounds
Firebird (manual)	40% @ 3500 pounds
	60% @ 4000 pounds
(automatic)	30% @ 3500 pounds
	70% @ 4000 pounds
LeMans (manual)	100% @ 4000 pounds
(automatic)	25% @ 4000 pounds
	75% @ 4500 pounds
Pontiac (automatic)	20% @ 4500 pounds
	80% @ 5000 pounds

The fuel economy for the Ventura car line equipped with the 350-2 barrel and automatic transmission is calculated by harmonically weighting the figures obtained in Step 1 by the sales factors shown above:

$$\text{Ventura, 350-2 barrel, automatic MPG} = \frac{1}{0.30 (1/15.9) + 0.70 (1/13.8)} = 14.4$$

The fraction of Ventura vehicles using the specific engine which fall in the 3500 pound/automatic transmission class.

Fuel economy for 3500 pound/automatic transmission (Step 1)

Rounding to the nearest whole mile per gallon in accordance with the "Rounding Off Method" specified in ASTM E 29-67, 14.4 becomes 14.

Similarly,

$$\text{Ventura, 350-2 barrel, manual MPG} = 16.1 \text{ (16)}$$

$$\text{Firebird, 350-2 barrel, manual MPG} = \frac{1}{0.40 \left( \frac{1}{16.1} \right) + 0.60 \left( \frac{1}{14.7} \right)} = 15.2 \text{ (15)}$$

$$\text{Firebird, 350-2 barrel, automatic MPG} = \frac{1}{0.30 \left( \frac{1}{15.9} \right) + 0.70 \left( \frac{1}{13.8} \right)} = 14.4 \text{ (14)}$$

$$\text{LeMans, 350-2 barrel, manual MPG} = 14.7 \text{ (15)}$$

$$\text{LeMans, 350-2 barrel, automatic MPG} = \frac{1}{0.25\left(\frac{1}{13.8}\right) + 0.75\left(\frac{1}{13.2}\right)} = 13.3 \text{ (13)}$$

$$\text{Pontiac, 350-2 barrel, automatic MPG} = \frac{1}{0.20\left(\frac{1}{13.2}\right) + 0.80\left(\frac{1}{10.6}\right)} = 11.0 \text{ (11)}$$

2. Note that even though no Firebird was actually tested, this approach permits its fuel economy figure to be estimated, based on the weight distribution of projected Firebird sales with the specific engine and transmission.

#### I. Fuel Economy Data Vehicles

1. Utilization of data. In order to incorporate as many vehicles as possible in the data base from which the sales-weighted average fuel economy values are calculated, EPA will permit manufacturers to test fuel economy data vehicles (of certified vehicle configurations) other than those vehicles designated by EPA as emission data vehicles. Manufacturers may submit the test results from such fuel economy data vehicles and, if the data are reasonable in EPA's engineering judgment, the test results will be included in the computations. Depending on the nature of the data, results from fuel economy data vehicles will be handled in one of three ways:
  - a) If the vehicle configuration (i.e., engine configuration, transmission sub-type, inertia weight, and axle ratio) from which the fuel economy data are generated is to be marketed in addition to those configurations already tested, then the fuel economy data vehicle shall be treated the same as an emission data vehicle in the calculations, with the sales assigned those projected for the respective vehicle configuration.
  - b) If the vehicle configuration from which the fuel economy data are generated is to be marketed in place of some or all of a configuration already tested, then the sales of the originally tested configuration shall be adjusted accordingly and the data from the new configuration treated as in subparagraph a) above.

- c) If a manufacturer desires to submit a fuel economy data vehicle which is identical in vehicle configuration to an emission data vehicle selected and tested by EPA, this will be allowed for the 1976 model year. However, all such vehicles will be tested by EPA and only the results of the EPA testing shall normally be used in subsequent calculations. In these cases, the official fuel economy test results for both vehicles will be harmonically averaged to obtain single city and highway fuel economy estimates for that specific vehicle configuration.

## 2. Vehicle Requirements

- a) To the extent possible, manufacturers' fuel economy data vehicles will be operated in accordance with 40 CFR Part 85 as it pertains to mileage accumulation and emission testing, except that those portions of the Federal Test Procedure dealing with evaporative emission measurements may be deleted. For the purpose of highway fuel economy testing, the procedures outlined in the October 15, 1974 Federal Register (39 F.R. 36890) shall apply.
- b) Each fuel economy data vehicle must meet the same exhaust emission requirements as emission data vehicles of the respective engine/system combination at the time the fuel economy results are generated, using the deterioration factors established for the respective engine/system combination per 40 CFR 85.075-28. Fuel economy data will not be accepted by EPA unless accompanying exhaust emission data demonstrate that the test vehicle meets applicable exhaust emission standards. Please note that a fuel economy data vehicle that fails emission standards has no effect on a manufacturer's certification program.
- c) Each fuel economy data vehicle shall have accumulated at least 4,000 miles (except for non-catalyst equipped vehicles which must have accumulated at least 2,000 miles) but not more than 10,000 miles. This requirement will be considered to have been met as long as the base vehicle (i.e., chassis, most driveline components, basic engine, etc.) has accumulated between 4,000 (2,000 miles for non-catalyst equipped vehicles) and 10,000 miles. Axle ratios, transmission type, and tire sizes may be changed, i.e., the components installed for a fuel economy test are not required to be the ones with which the mileage was accumulated. Engine components may be changed only with advance EPA approval.

- d) A fuel economy data vehicle may be tested at different inertia weight loadings from the one at which it would normally be tested, to simulate vehicle weights different from the test vehicle.
  - e) Major engine tune ups may be performed no later than 2,000 miles prior to the test.
3. Submission of Data. A vehicle becomes an official fuel economy data vehicle at the time the manufacturer submits the vehicle emission and fuel economy data to EPA for review. In order for the results of a fuel economy data vehicle to be approved by EPA, the following information is required to be submitted to the Fuel Economy Group, Certification Branch, Ann Arbor, Michigan:
- a) Vehicle description, emission results, and fuel economy data as indicated in the attached format, or reasonable equivalent. Use of the format will expedite the review process and eliminate the need to seek data from other sources.
  - b) If the fuel economy data vehicle is altered from the configuration in which it accumulated mileage, include a description of the changes.
  - c) A description of all maintenance performed in the last 2000 miles to components other than those listed in the Appendix to EPA's MSAPC Advisory Circular No. 4A-1.
  - d) A statement that the fuel economy data vehicles, with respect to which data are submitted, have been tested in accordance with applicable test procedures, that they are to the best of the manufacturer's knowledge representative of the vehicle configuration listed, and they are in compliance with applicable exhaust emission standards.
4. Review of Data
- a) EPA will review the city and highway fuel economy data submitted to determine if they are reasonable. If the vehicle meets applicable exhaust emission standards and, in EPA's engineering judgment, the data are reasonable, obtained in accordance with required procedures, and representative of the particular test vehicle, the results will be approved by EPA and treated accordingly.



- b) If, in EPA's engineering judgment, the city or highway fuel economy of a fuel economy data vehicle does not appear to be reasonable, EPA will require a confirmatory test at the EPA lab. EPA reserves the right to reject the manufacturer's data if EPA concludes that the data may in some way be questionable or unrepresentative, or to require a confirmatory test. Rejection of data from a fuel economy data vehicle for any reason does not impact on the certification status of the respective engine family.

J. Provisions for a Retest on Vehicles on which EPA Performs Confirmatory Tests

1. There are two reasons for retests. If a test is invalid the vehicle will be retested. The validity of a test will be determined according to practices consistent with 40 CFR Part 85, Subpart A. For example, a test would be voided if the speed tolerance specified in Section 85.075-14(b) was exceeded.
2. If the first test is valid but the manufacturer's city or highway fuel economy results differ from EPA results by more than 10 percent of the EPA results, EPA will conduct a retest. When the retest is performed, the manufacturer's test results and the results of the first EPA test will be compared with the EPA retest results. If the manufacturer's test or EPA's first test differ by 10 percent or less from the EPA retest, the retest results shall normally comprise the official data for the respective vehicle. If the manufacturer's test and EPA's first test differ by more than 10 percent from EPA's retest, a third EPA test will be performed. The manufacturer's test, the first EPA test, and the second EPA test will be compared with the third EPA test, and so on until the results of a previous test differ by 10 percent or less from the latest EPA test. Providing the data appear reasonable, the results of the last EPA test shall normally comprise the official data for the respective vehicle.

K. EPA Data Review Process

All EPA fuel economy test results are carefully checked for accuracy and reasonableness prior to using these results in any calculations. Once a vehicle is tested, the data enter into a comprehensive three-phase review process.

1. The raw data is checked for transcription and data errors. Tests that exceed emission standards are not subject to any further review.
2. After the computer processes the data and calculates the emission and mileage results, six objective tests are applied to the data. The tests include the ratio of highway to city fuel economy, comparison of the EPA results to the manufacturer's (if available), comparison of the EPA city fuel economy to a value predicted by regression analysis, and comparison of the ratios of fuel economy of the three portions of the city cycle to one another. These tests identify test results which are not in line with characteristics of the overall data base, but do not necessarily result in the rejection of data that "fails" a test.
3. A subjective review follows, during which similar vehicles e.g., those within the same engine family, are grouped together and their fuel economy values compared. The subjective tests can provide an additional basis for acceptance or rejection of test data. For example, if there are four test vehicles in an engine family and all of the vehicles "failed" the same objective test but the fuel economy results of the four are quite close, the test results are generally accepted. If, however, one test vehicle stands out, the test results and the vehicle are investigated. If a technical explanation can be found for the difference (e.g., an unusually high axle ratio could be such an explanation), the results will be accepted.

If a particular fuel economy test result is found to be inaccurate or unreasonable by the above review process, EPA will proceed with one of the following options:

- a) EPA will request that the vehicle be resubmitted for further fuel economy testing. This option will in no way affect a manufacturers' emission certification.
- b) EPA will accept the manufacturer's fuel economy result if it appears accurate and reasonable.
- c) EPA will reject the use of the vehicle in question for the fuel economy program.

L. Running Change Fuel Economy Data\*\*

Running changes which are approved by EPA (prior to the applicable cutoff dates for publication of the two editions of the Guide) may be submitted for inclusion in the fuel economy calculations through the mechanism of fuel economy data vehicles (see Paragraph I of this Attachment). Fuel economy data from running changes will be considered by EPA only at the specific request of the manufacturer. No running change fuel economy data will be accepted unless precise sales projections are also supplied. Once a fuel economy value for a car line/engine/transmission type combination appears on a general label or in the Guide, no further revision of that value is permitted. Car line, engines, and transmission types added after publication of the first guide but before publication of the second edition will be included in the second edition.

M. Deadlines for Submission of Information

1. August 15, 1975 is the last day that the following information will be accepted for the first edition of the Guide.
  - a) Fuel economy data vehicle test results (fuel economy data submitted after August 15 but by August 29 will be utilized only if EPA accepts the data without confirmatory testing).
  - b) Car line identification of 1975 product line
  - c) Recommendations as to how engine families should be grouped or separated.
2. August 29, 1975 is the last day that the following information will be accepted for the first edition of the Guide.
  - a) Revised sales projections (including identification of back-up engine families that will not be produced).
  - b) Marketing intentions (e.g., which vehicles will be offered for sale only in California).
  - c) Results from EPA fuel economy tests.
3.
  - a) All car line/engine/transmission combinations to be included in the first edition of the Guide must be certified by September 12, 1975.
  - b) All running changes to be included in the first edition of the Guide must be approved by September 12, 1975.

\*\*See note at end of Attachment A.

4. EPA will cooperate with manufacturers who choose to establish earlier deadlines for certain engine families in order to establish the Guide fuel economy estimates early for marketing and advertising purposes. However, once the fuel economy for a car line/engine/transmission combination is established under such conditions it cannot be modified before the cut-off date which would otherwise apply.
5. If a car line/engine/transmission combination is not included in the first edition of the Guide, the following deadlines apply:
  - a) One week after a certificate is issued, intermediate calculations and manufacturer's report will be made available to the manufacturer for his review.
  - b) A manufacturer has one working week to review the calculations, after which EPA will assume that no discrepancies exist between the manufacturer's calculations and EPA's, and proceed as if the manufacturer has confirmed the results.
  - c) During the one week review period, the manufacturer may respond:
    - i) That original certification information, i.e., sales data, test vehicles, etc. are to be used for the fuel economy calculations, or
    - ii) That sales revisions or additional fuel economy data vehicles will be submitted.
  - \*\*d) If ("i") above applies, EPA will make the fuel economy results public by putting the information in the public docket. Periodic press announcements containing the fuel economy results of newly certified vehicles may also be released.

If ("ii") above applies, data from changes or revisions must be submitted within two weeks. One week after submission of additional data, calculations would be available to the manufacturer for his review. EPA will then make the information public, etc.

\*\*See note at end of Attachment A.

EPA will normally not make fuel economy results public if a manufacturer notifies EPA that the affected car line/engine/transmission type combinations are not to be offered for sale until a specified date and the manufacturer does not wish to make the fuel economy results public until that time.

- e) EPA will cooperate with manufacturers who wish to submit additional fuel economy data prior to the public release of the fuel economy results provided that reasonable deadlines can be established. Manufacturers should contact the Fuel Economy Group, Certification Branch, Ann Arbor, Michigan, when they foresee these special circumstances.
6. Data for car line/engine/transmission combinations certified too late to be included in the first edition of the Guide but prior January 1, 1976, may be included in the second edition of the Guide, tentatively planned for February 1976.

**\*\*Note**

**Clarification of Data Release Policy**

Paragraph L states, in part, that "once a fuel economy value for a car line/engine/transmission type combination appears on a general label or in the Guide, no further revision of that value is permitted." Paragraph M(5)(d) refers to EPA releasing fuel economy results by "putting the information in the public docket" and making "the information public."

Fuel economy values (potential Guide entries) released through an EPA press release or placed in the public docket are approved general label values (even though they may not have yet been published in the Guide) and as such are final values that will not be updated.

Mfr. \_\_\_\_\_

SPECIFIC LABEL APPROVAL REQUEST

Vehicle Specifications <sup>1/</sup> :

Actual Dynamometer HP \_\_\_\_\_

Engine Family \_\_\_\_\_ Vehicle I.D. or Serial No. \_\_\_\_\_ Model \_\_\_\_\_

Engine Code \_\_\_\_\_ Displacement \_\_\_\_\_ Emission Control System \_\_\_\_\_

Transmission Sub-type \_\_\_\_\_ Axle Ratio \_\_\_\_\_ N/V Ratio \_\_\_\_\_ Inertia Weight \_\_\_\_\_  
(M-3, M-4, A-3, etc.)

Carburetor Type \_\_\_\_\_ Idle Speed Specification \_\_\_\_\_ RPM in \_\_\_\_\_ Advertised HP \_\_\_\_\_

Ignition Timing Specification \_\_\_\_\_ Degrees \_\_\_\_\_ TDC at \_\_\_\_\_ RPM Air Conditioning \_\_\_\_\_

Applicable Deterioration Factors: HC = \_\_\_\_\_ CO = \_\_\_\_\_ NO<sub>x</sub> = \_\_\_\_\_

Test Data <sup>2/</sup> :  
Federal Test Procedure City Highway  
Actual Exhaust Emission Fuel Economy  
Actual Ignition Results  
Odom. Idle Miles Speed HC CO NO<sub>x</sub> CO<sub>2</sub> (MPG) (MPG)

Date \_\_\_\_\_ Location \_\_\_\_\_ Test No. \_\_\_\_\_

Label Application:

Car Line	Engine Family	Engine Displacement	Engine Code <sup>3/</sup>	Transmission Subtype	Inertia Weight	Axle Ratio	Catalyst Value	City F.E. Label Value	(MPG)

Manufacturer's Signature \_\_\_\_\_ Date \_\_\_\_\_

1/ Attach a copy of carburetor, distributor, any auxiliary emission control devices, and EGR valve (if applicable) calibration curves, showing the calibration of the actual components on the test vehicle as well as the engineering limits (if not previously submitted to EPA Fuel Economy Group).

2/ Report results of all valid tests performed on this vehicle while in this configuration, and identify any results which, in the manufacturer's opinion, are suspect.

3/ If a parameter that determines engine code has been revised by a running change, a new "Engine Code" designation should be used.

Mfr.

1/

Test Vehicle Specifications :

FUEL ECONOMY VEHICLE DATA SHEET

Engine Family

Engine Code

Transmission Type

Carburetor Type

Ignition Timing Specification

Applicable Deterioration Factors:

Vehicle I.D. or Serial No.

Displacement

Axle Ratio

Idle Speed Specification

Degrees

HC =

CO =

NOx =

Model

Emission Control System

N/V Ratio

RPM in

TDC at

RPM

Air Conditioning

Inertia Weight

Advertised HP

2/

Test Data :

Date

Location

Test No.

Odom. Miles

Actual Idle Speed

Actual Ignition Timing

Federal Test Procedure Exhaust Emission Results

City Fuel Economy

Highway Fuel Economy

Represented Vehicles :

Car Line

Projected Sales

Car Line

Projected Sales

Total Projected Sales of Represented Vehicle Configuration

1/ Attach a copy of carburetor, distributor, any auxiliary emission control devices, and EGR valve (if applicable) calibration curves, showing the calibration of the actual components on the test vehicle as well as the engineering limits.

2/ Report results of all valid tests performed on this vehicle while in this configuration, and identify any results which, in the manufacturer's opinion, are suspect.

## Attachment B

## 1976 Model Year Voluntary Fuel Economy Labeling Program

A. Objective

The objective of the program is to reduce energy usage in the transportation sector by increasing public awareness of factors which influence fuel economy, influencing consumers to purchase vehicles with better fuel economy, and influencing manufacturers to produce vehicles with improved fuel economy.

B. Definitions

"Fuel Economy" means the estimated miles a motor vehicle can be driven on a specified driving cycle per gallon of fuel.

"Federal Emission Test Procedure" refers to the dynamometer driving schedule, dynamometer procedure, and sampling and analytical procedures described in 40 CFR Part 85.

"Federal Highway Fuel Economy Procedure" refers to the Federal highway dynamometer driving schedule, dynamometer procedure, and sampling and analytical procedures described in the October 15, 1974 Federal Register (39 F.R. 36890).

C. Scope of the Program

Automobiles which will be included in the fuel economy labeling program are gasoline-fueled light duty vehicles and trucks, and diesel-powered light duty vehicles and trucks. Automobiles which are manufactured for sale outside the United States are not included in this program.

D. Program Discription

1. Each participating manufacturer will place purchaser removable stickers on each automobile, in accordance with the format described. Manufacturers who elect to participate in the program obligate themselves to place a sticker on every car in their product line as soon as possible after the relevant fuel economy values have been provided to them by EPA. Manufacturers may choose to label their vehicles with specific or general information.



2. Manufacturers are encouraged to make available to dealers, for distribution and display in the showroom, the Gas Mileage Guide for New Car Buyers and information explaining the effects of optional equipment and other factors on fuel economy. Copies of the Guide will be published by the Federal Energy Administration and the Environmental Protection Agency and will be available by writing to Fuel Economy, Pueblo, Colorado 81009.

3. Where possible, the effective date for implementing the labeling program is the start of the 1976 model production or, if not possible, as soon thereafter as is practical. Specific labels may be introduced and revised at any time throughout the model year; general labels may not be revised during the model year and must be consistent with the data included in the Guide.

#### E. Label Description

1. The label must be of a reasonable size and consistent as regards content and format with the sample labels on pp 6-7. The label must be prominently displayed, either on the same window as the price sticker or on a side rear window. The inclusion of the label as part of the price sticker is highly recommended. If the manufacturer elects to use the price sticker for fuel economy labeling, the format of the material to be included on the price sticker must be approved in advance by EPA. The option to use a separate label is still open to the manufacturer. Requests for approval of alternate label locations are to be submitted to the Certification Division, which will review the request in coordination with the Federal Energy Administration.

2. The fuel economy label will present separately the fuel economy for city and highway driving. The fuel economy information will be derived from vehicles tested on the Federal Test Procedure and the Federal Highway Fuel Economy Procedure, in the manner discussed in Attachment A. The data necessary for the label will be provided or certified to the participating manufacturer by EPA.

3. Two basic types of labels will be used in the Voluntary Fuel Economy Labeling Program: (a) General Labels and (b) Specific Labels. Manufacturers may on any individual vehicle use either label at their option. EPA and FEA encourage manufacturers to utilize the specific labels since specific labels, representing the fuel economy results of individual vehicle configurations are most representative of the vehicle on which they appear.

4. The General Label will present the sales weighted average of fuel economy values as included in the Guide, by car line (separately for passenger cars and station wagons) as derived from all emission data and fuel economy data vehicles. The label will identify the car line, engine

(in cubic inch displacement), number of cylinders, transmission type (manual or automatic), fuel system and catalyst usage. The fuel economy value will be expressed in terms of the nearest whole mile per gallon. The label will carry a reminder that the vehicle was tested with frequently purchased optional equipment.

5. The Specific Label (Figure 2) will present the EPA approved fuel economy values for a specific vehicle configuration. The fuel economy values will be rounded to the nearest whole mile per gallon. A manufacturer's intention to use a specific label must be indicated on the application format (see Attachment A).

6. At the time of a manufacturer's first application for use of a specific label, the manufacturer will submit a sample of his specific label design. EPA in coordination with FEA will approve the specific label design based on a feature (preferably color) which clearly distinguishes the specific label from the general label. Approval of a specific label design will remain in effect for the rest of the model year, even though individual approval must be obtained for the fuel economy values to be used on each specific label.

7. Except in those cases where approval is given to accommodate the inclusion of fuel economy data on the price sticker, all labels must include all of the narrative material given in the attached illustration.

#### F. Source of Data

1. The data to be included on the general labels will be the same data that are included in the Gas Mileage Guide for New Car Buyers. Each manufacturer will be furnished the data for his certified car lines by September 19, at the latest, depending on when EPA has received all data related to his certified car lines. EPA intends to announce 1976 fuel economy results about that date.

2. In those situations where a manufacturer elects to use specific labels, the fuel economy data must be approved by EPA prior to use. Information on test vehicle requirements, submission of data, review of data, and provisions for EPA confirmatory tests on fuel economy data vehicles may be found in Attachment A.

3. The EPA fuel economy data for General Labels will not be revised for the duration of the model year. In the event of running changes affecting cars with specific labels, where such running changes

require the performance of an emission test, the fuel results from such emission test and subsequent highway test shall normally be used on Specific Labels for vehicle configurations incorporating that running change. Where changes are made for which EPA does not require an emission test, and the manufacturer does not provide fuel economy data, the fuel economy results originally reported will continue to apply.

G. Participation by manufacturers

1. Manufacturers desiring to participate in the voluntary fuel economy labeling program for the 1976 model year should notify the Environmental Protection Agency by June 13, 1975. This notification should state that the manufacturer will abide by all the conditions specified herein.

2. The conditions for participation in the program by the manufacturer include the following:

(a) The manufacturer will arrange to display a fuel economy label in such location approved by EPA, on every gasoline-fueled light duty vehicle, light truck, and diesel-powered light duty truck and vehicle which is manufactured by him for sale in the United States, after the manufacturer initiates labeling.

b) The manufacturer will include only EPA-approved fuel economy values on the vehicle label. Fuel economy values are not approved by EPA until the manufacturer receives specific written notice to that effect. In instances in which time pressures require, verbal approval will be subsequently confirmed in writing.

c) In performing his own testing for the purpose of this program, each manufacturer will use only the specified test procedure and will submit both emission and fuel economy results to EPA for review.

d) The manufacturer agrees to provide to EPA in its Ann Arbor laboratory any fuel economy data vehicle for which the Environmental Protection Agency elects to conduct confirmatory tests. Failure to provide a vehicle would result in rejection from consideration of data from that vehicle.

3. The warranty provision of the Clean Air Act, relating to emission performance of production vehicles, does not apply to information presented on the fuel economy label.

H. Termination of Participation \*\*

1. The Environmental Protection Agency, upon finding that the manufacturer is not reasonably complying with the conditions of

\*\*See note at end of Attachment B.

participation, may direct the manufacturer to cease using the EPA-approved labels. The manufacturer will first be given an opportunity to show cause why his participation should not be terminated.

2. A manufacturer may terminate his participation in this program at any time by giving written notice to EPA.

**\*\*Note:**

Paragraph H, above, is effectively cancelled by Section 506(a)(2)(B) of the Motor Vehicle Information and Cost Savings Act, as amended by the Energy Policy and Conservation Act signed into law on December 22, 1975.



Figure 1  
General Label



Based on the results of tests conducted or certified by the U.S. ENVIRONMENTAL PROTECTION AGENCY, the typical gas mileage of this car is estimated to be:

Vehicle: Torino, 8 cylinder, 351 cubic inch displacement, 2 barrel carburetor, automatic transmission, catalyst equipped.

10 MILES PER GALLON FOR CITY DRIVING

and

16 MILES PER GALLON FOR HIGHWAY DRIVING

These estimates are based on tests of vehicles equipped with frequently purchased optional equipment.

Reminder: The actual fuel economy of this car will vary depending on the type of driving you do, your driving habits, how well you maintain your car, optional equipment installed, and road and weather conditions.

To compare the fuel economy of this car with other 1976 cars, and to learn how the tests were conducted, write for the EPA/FEA 1976 Gas Mileage Guide for New Car Buyers, to Fuel Economy, Pueblo, Colorado 81009.



Figure 2  
Specific Label



Based on the results of tests conducted or certified by the U.S. ENVIRONMENTAL PROTECTION AGENCY, the typical gas mileage of this car is estimated to be:

Vehicle: Torino, 8 cylinder, 351 cubic inch displacement, 2 barrel carburetor, automatic transmission, catalyst equipped, 4,000 pounds test weight, 3.02 axle ratio.

10 MILES PER GALLON FOR CITY DRIVING

and

16 MILES PER GALLON FOR HIGHWAY DRIVING

These estimates are based on tests of vehicles equipped with frequently purchased optional equipment.

Reminder: The actual fuel economy of this car will vary depending on the type of driving you do, your driving habits, how well you maintain your car, optional equipment installed, and road and weather conditions.

To compare the fuel economy of this car with other 1976 cars, and to learn how the tests were conducted, write for the EPA/FEA 1976 Gas Mileage Guide for New Car Buyers, to Fuel Economy, Pueblo, Colorado 81009.

## Attachment C

## EPA Fuel Economy Data Review Process

(1976 Model Year)

All EPA fuel economy test results are carefully checked for accuracy and reasonableness prior to using these results in any calculations. Once a vehicle is tested, the data are subjected to a comprehensive three-phase review process.

- a. The raw data are checked for transcription and data errors. Tests that exceed emission standards are not subject to any further review.
- b. After the computer processes the data and calculates the emission and mileage results, five objective tests are applied to the fuel economy results. These are:
  1. Is the manufacturer's city fuel economy result or a previous EPA result within 10 percent of the latest EPA city fuel economy result?
  2. Is the manufacturer's highway fuel economy result or a previous EPA result within 10 percent of the latest EPA highway fuel economy result?
  3. Does the ratio of highway fuel economy to city fuel economy fall within the applicable band limit:  
  
Vehicles with manual transmissions: 1.30-1.70  
Vehicles with automatic transmissions: 1.20-1.60
  4. For the city fuel economy test, is the ratio of the Bag 2 fuel economy to the Bag 1 fuel economy within the range of 0.80 to 1.30? (Measurement of emissions on the city test is done in three phases, i.e., Bag 1, Bag 2, and Bag 3.)
  5. For the city economy test, is the ratio of the Bag 2 fuel economy to the Bag 3 fuel economy within the range of 0.78 to 1.00?

These tests serve to identify test results which are not in line with characteristics of the overall data base, but do not necessarily result in rejection of the test results that "fail" any of the tests.

- c. A subjective review follows, during which similar vehicles, e.g., those within the same engine family, are grouped together and their fuel economy values compared. The subjective tests can provide an additional basis for acceptance or rejection of test data. For example, if there are four test vehicles in and engine family and all of the vehicles "failed" the same objective test but the fuel economy results of the four are quite close, the test results are generally accepted. If, however, the data from one test vehicle stands out, the test results and the vehicle are investigated. If a technical explanation can be found for the difference (e.g., an unusually high axle ratio could be such an explanation), the results will be accepted.



## Attachment D

## Acceptance Criteria For Fuel Economy Labels Included on the Price Sticker

EPA, in coordination with the FEA, is prepared to approve fuel economy label formats which differ from the formats displayed in Attachment B only when the manufacturer elects to include the fuel economy label as part of the price sticker. For the 1976 model year we will allow such deviations from the standard fuel economy label format in accordance with the following guidelines:

1. The sentence which notifies the consumer of the availability of the Guide may be shortened or deleted.
2. For general fuel economy labels, the vehicle description may be modified or deleted.
3. For specific fuel economy labels, the vehicle description may be modified (but not deleted).
4. All other information is necessary but may be presented in a modified manner provided it is consistent with the information displayed on the standard label format.
5. All modifications and deletions to the standard label format are subject to EPA/FEA approval.

## Attachment E

## Inertia Weights Not Represented by Emission-Data Vehicles

The calculation procedures for the 1976 EPA/FEA fuel economy program require that fuel economy values be obtained for each engine family/engine displacement/transmission type/inertia weight combination available within a manufacturer's product line. This attachment describes the procedures by which EPA will obtain fuel economy values for inertia weight classes not represented by emission-data vehicles.

Testing to fill unrepresented inertia weights

In all cases where it is reasonable to do so, EPA will attempt to obtain fuel economy values for unrepresented inertia weight classes by testing. Manufacturers will be urged to:

1. Modify (if appropriate) an emission-data vehicle which has completed all certification testing and retest at different dynamometer inertia weight and horsepower settings to simulate a different vehicle. To ensure the reasonableness of these fuel economy values, test data obtained from both the manufacturer's facility and the EPA facility are desirable but not essential.
2. Build test vehicles (fuel economy data vehicles) to represent the appropriate combinations and submit the test data to EPA. These vehicles must meet the requirements in Section I of Attachment A.

Estimating the fuel economy of unrepresented inertia weights

In the cases where it is not possible or appropriate to obtain a fuel economy value for an unrepresented inertia weight by testing, the EPA will estimate a value for the unrepresented inertia weight. Although computer regression analysis may prove to be the best estimating technique, there is not sufficient time available to finalize and evaluate this technique for use during the 1976 fuel economy program. For this reason, the EPA will continue their investigation of this technique for possible future use but will use the following fuel economy procedure for fuel economy values for the 1976 program.

1. In cases where one or more unrepresented inertia weights exist within an engine family/engine displacement/transmission type combination and there are fuel economy data available for at least two inertia weights within that combination (excluding any data available in the 5500 + pound inertia weight class), the EPA will fit a straight line (using the method of least squares when data from more than two inertia weights are available) through the available engine/transmission/inertia weight fuel economy data. The fuel economy estimate for the unrepresented inertia weight(s) will be the interpolated and/or extrapolated values obtained from the line. This method cannot be used to estimate the fuel economy of vehicles in the 5500 + pound inertia weight class.

2. In situations other than those described above, the fuel economy estimate for the unrepresented inertia weight will be the fuel economy values of the engine/transmission/inertia weight combination associated with the next heaviest inertia weight class for which data are available. If data are not available for any heavier inertia weights then the fuel economy estimate for the unrepresented inertia weight will be the fuel economy values of the engine/transmission/inertia weight combination associated with the next lower inertia weight class for which data are available. Where appropriate, EPA may use the fuel economy data of a vehicle tested at 5500 pounds inertia weight to represent the 5500 + pound class (and vice versa).

3. The EPA will not approve manufacturers' requests to use specific labels which are based on EPA fuel economy estimates rather than on actual test results.

## Attachment F

Fuel Economy Calculation Procedures Associated with Optional  
Test Weight Procedures

As authorized by 40 CFR 85.075-7\*, if the loaded vehicle weight is within 100 pounds of being included in the next higher inertia weight class, the manufacturer may elect to conduct the respective emissions tests at the inertia weight corresponding to the higher loaded vehicle weight.

EPA will use the following procedure for calculating fuel economy for car lines that are affected by the optional test weight procedures outlined in 40 CFR 85.075-7.

1. When a manufacturer elects to test a vehicle at the optional (higher) inertia weight and there are no data available for the particular vehicle configuration when tested at the usual (lower) inertia weight, sales associated with the vehicle configuration will be applied to the test data obtained from the tests of the vehicle at the optional (higher) inertia weight.
  2. When a manufacturer elects to test a vehicle at the optional (higher) inertia weight and there are data available for the particular vehicle configuration when tested at the usual (lower) inertia weight, the sales associated with the vehicle configuration will be applied to the data obtained from the tests at the usual (lower) inertia weight.
  3. The tests results from a vehicle tested at an optional (higher) inertia weight may be used by EPA to calculate the fuel economy of an engine/inertia weight/transmission class if those data are judged by EPA to be the most reasonable estimates when compared with the estimates based upon the procedure outlined in Attachment E.
- \* Reference can also be made to 40 CFR 85.175-7, 85.275-7, and 85.375-7.

## Attachment G

## General Fuel Economy Label Calculation Procedure for Added Car Lines

To the extent possible, General Label values for car lines added to families previously included in the Guide should be calculated in a manner which is consistent with the original calculations. Those who are familiar with the calculation procedure described in Attachment A realize that fuel economy values appearing in the September edition of the Guide could be affected if the additional test data associated with adding a car line to an engine family via the running change (or addition of a vehicle) procedure were included in the calculations. However, one of the basic rules of the 1976 fuel economy program prohibits revising the fuel economy values for a car line/engine/transmission combination once those have appeared in the Guide (ref. Section L of Attachment A) or have been released to the public by EPA. Therefore, General Fuel Economy Label information will not be revised after it has been released to the public. The following procedure will be used to calculate the General Label values for added car lines:

1. If no testing is required and no additional data (fuel economy data vehicles) are supplied by the manufacturer, then the fuel economy results for the added car line will be calculated using the same data base that was used for the previous Guide calculations.
2. If testing is required or additional data are supplied by the manufacturer, and the inertia weight/transmission class is unique to the added car line, then the standard calculation procedure outlined in Attachment A will be used.
3. If testing is required or additional data are supplied by the manufacturer, and the inertia weight/transmission class is not unique to the added car line, then the original data base plus the additional data will be used to calculate the fuel economy results of the added car line. The fuel economy results for car line/displacement/transmission combinations which appeared in the September edition of the Guide (including updates released to the public) will not be revised.